

In the Claims

This listing of claims will replace all prior versions and listings of claims in the application:

1           1.    (Currently Amended) A method of exporting emulation  
2 information from a data processor, comprising:

3           collecting internal emulation information from a data  
4 processor at a data processor clock rate;

5           arranging the collected emulation information into a plurality  
6 of first information blocks having a first fixed size;

7           receiving the plurality of first information blocks and  
8 arranging the emulation information contained therein into a  
9 plurality of second information blocks having a second fixed size  
10 which differs from the first fixed size of the first information  
11 blocks; and

12          outputting a sequence of the second information blocks via a  
13 plurality of terminals ~~equal in number to said second fixed size at~~  
14 a transmission clock rate, said first fixed size, said data  
15 processor clock rate, said second fixed size and said transmission  
16 clock rate related whereby a bit rate of first information blocks  
17 equals a bit rate of said second information blocks.

1           2.    (Previously Presented) The method of Claim 1, wherein the  
2 second fixed size is smaller in size than the first fixed size.

1           3.    (Original) The method of Claim 1, including receiving the  
2 sequence of second information blocks externally of the data  
3 processor, and re-arranging the emulation information contained in  
4 the second information blocks into a plurality of the first  
5 information blocks.

1           4.   (Original) The method of Claim 1, wherein each of the  
2 first and second information blocks is a packet of emulation  
3 information.

Claims 5 to 15.           (Cancelled)

1           16.   (Currently Amended) An integrated circuit, comprising:  
2           a data processor for performing data processing operations;  
3           a collector coupled to said data processor for collecting  
4 emulation information from said data processor at a data processor  
5 clock rate and arranging said emulation information into a  
6 plurality of first information blocks having a first fixed size;  
7           an exporter coupled to said collector for receiving therefrom  
8 said plurality of first information blocks and arranging said  
9 emulation information contained therein into a plurality of second  
10 information blocks having a second fixed size which differs from  
11 the first fixed size of said first information blocks;  
12           a plurality of terminals for outputting information ~~equal in~~  
13 ~~number to said second fixed size;~~ and  
14           said exporter coupled to said terminals for outputting a  
15 sequence of the second information blocks via said terminals at a  
16 transmission clock rate, said first fixed size, said data processor  
17 clock rate, said second fixed size and said transmission clock rate  
18 related whereby a bit rate of first information blocks equals a bit  
19 rate of said second information blocks.

1           17.   (Previously Amended) The integrated circuit of Claim 16,  
2 wherein said second fixed size is smaller in size than said first  
3 fixed size.

Claims 18 to 26.           (Canceled)

1        27. (Currently Amended) A data processing system, comprising:  
2        an integrated circuit, including a data processor for  
3        performing data processing operations;  
4        an emulation controller coupled to said integrated circuit for  
5        controlling emulation operations of said data processor;  
6        said integrated circuit including an apparatus coupled between  
7        said data processor and said emulation controller for providing  
8        emulation information about said data processing operations, said  
9        apparatus including a collector coupled to said data processor for  
10       collecting said emulation information from said data processor at a  
11       data processor clock rate and arranging said emulation information  
12       into a plurality of first information blocks having a first fixed  
13       size, and an exporter coupled to said collector for receiving  
14       plurality of first information blocks and arranging said emulation  
15       information contained therein into a plurality of second  
16       information blocks having a second fixed size which differs from  
17       the first fixed size of said first information blocks; and  
18       said integrated circuit including a plurality of terminals  
19       coupled to said emulation controller ~~equal in number to said second~~  
20       ~~fixed size~~ for outputting information to said emulation controller,  
21       said exporter coupled to said terminals for outputting a sequence  
22       of said second information blocks to said emulation controller via  
23       said terminals at a transmission clock rate, said first fixed size,  
24       said data processor clock rate, said second fixed size and said  
25       transmission clock rate related whereby a bit rate of first  
26       information blocks equals a bit rate of said second information  
27       blocks.

1        28. (Original) The system of Claim 27, including a  
2        man/machine interface coupled to said emulation controller for  
3        permitting a user to communicate with said emulation controller.

29. (Original) The system of Claim 28, wherein said man/machine interface includes one of a visual interface and a tactile interface.

30. (Currently Amended) The method of Claim 2, wherein:  
said first fixed size is an integral multiple of said second fixed size; and

said step of receiving the plurality of first information blocks and arranging the emulation information contained therein into a plurality of second information blocks includes the steps of

(a) storing a current first information block in a current packet register,

(b) sequentially selecting groups of the second fixed size bits from the current packet register as a second information block, a first selected group beginning at a first bit of said current packet register, subsequent selected groups beginning at a bit following a last bit of a prior group, until all bits of the current packet register are selected,

(c) thereafter storing a next first information block in the current ~~block~~ packet register and repeating steps (a), (b) and (c).

31. (Previously Presented) The method of Claim 2, wherein:  
said first fixed size is not an integral multiple of said second fixed size; and

said step of receiving the plurality of first information blocks and arranging the emulation information contained therein into a plurality of second information blocks includes the steps of

(a) storing a current first information block in a current packet register,

9 (b) sequentially selecting groups of the second fixed  
10 size bits from the current packet register as a second  
11 information block, a first selected group beginning at a next  
12 bit of said current packet register, subsequent selected  
13 groups beginning at a bit following a last bit of a prior  
14 group, until a number of bits of remaining in the current  
15 packet register is less than the second fixed number,

16 (c) storing the current first information block in a last  
17 packet register,

18 (d) storing a next first information block in the current  
19 packet register,

20 (e) selecting a group of the second fixed size bits from  
21 a set of bits remaining in the last packet register and bits  
22 starting at a first bit of the current packet register, and

23 (f) thereafter repeating steps (b), (c), (d) and (e).

1 32. (Currently Amended) The integrated circuit of claim 17,  
2 wherein:

3 said first fixed size is an integral multiple of said second  
4 fixed size; and

5 said exporter includes

6 a current packet register, and

7 a combiner connected to said current packet register and  
8 said terminals, said combiner operable to

9 (a) store a current first information block in a  
10 current packet register,

11 (b) sequentially select groups of the second fixed  
12 size bits from the current packet register as a second  
13 information block, a first selected group beginning at a  
14 first bit of said current packet register, subsequent  
15 selected groups beginning at a bit following a last bit

16 of a prior group, until all bits of the current packet  
17 register are selected,

18 (c) thereafter store a next first information block  
19 in the current ~~block~~ packet register and repeat steps  
20 (a), (b) and (c).

1 33. (Previously Presented) The integrated circuit of claim  
2 17, wherein:

3 said first fixed size is not an integral multiple of said  
4 second fixed size; and

5 said exporter includes

6 a current packet register,

7 a last packet register, and

8 a combiner connected to said current packet register and  
9 said terminals, said combiner operable to

10 (a) store a current first information block in a  
11 current packet register,

12 (b) sequentially select groups of the second fixed  
13 size bits from the current packet register as a second  
14 information block, a first selected group beginning at a  
15 next bit of said current packet register, subsequent  
16 selected groups beginning at a bit following a last bit  
17 of a prior group, until a number of bits of remaining in  
18 the current packet register is less than the second fixed  
19 number,

20 (c) store the current first information block in a  
21 last packet register,

22 (d) store a next first information block in the  
23 current packet register,

24 (e) select a group of the second fixed size bits  
25 from a set of bits remaining in the last packet register

26 and bits starting at a first bit of the current packet  
27 register, and  
28 (f) thereafter repeat steps (b), (c), (d) and (e).

1 34. (Previously Presented) The data processing system of  
2 Claim 27, wherein:

3 said second fixed size is smaller in size than said first  
4 fixed size.

1 35. (Currently Amended) The data processing system of claim  
2 34, wherein:

3 said first fixed size is an integral multiple of said second  
4 fixed size; and

5 said exporter includes

6 a current packet register, and

7 a combiner connected to said current packet register and  
8 said terminals, said combiner operable to

9 (a) store a current first information block in a  
10 current packet register,

11 (b) sequentially select groups of the second fixed  
12 size bits from the current packet register as a second  
13 information block, a first selected group beginning at a  
14 first bit of said current packet register, subsequent  
15 selected groups beginning at a bit following a last bit  
16 of a prior group, until all bits of the current packet  
17 register are selected,

18 (c) thereafter store a next first information block  
19 in the current ~~block~~ packet register and repeat steps  
20 (a), (b) and (c).

1 36. (Previously Presented) The data processing system of  
2 claim 34, wherein:

3       said first fixed size is not an integral multiple of said  
4 second fixed size; and

5       said exporter includes

6       a current packet register,

7       a last packet register, and

8       a combiner connected to said current packet register and  
9 said terminals, said combiner operable to

10       (a) store a current first information block in a  
11 current packet register,

12       (b) sequentially select groups of the second fixed  
13 size bits from the current packet register as a second  
14 information block, a first selected group beginning at a  
15 next bit of said current packet register, subsequent  
16 selected groups beginning at a bit following a last bit  
17 of a prior group, until a number of bits of remaining in  
18 the current packet register is less than the second fixed  
19 number,

20       (c) store the current first information block in a  
21 last packet register,

22       (d) store a next first information block in the  
23 current packet register,

24       (e) select a group of the second fixed size bits  
25 from a set of bits remaining in the last packet register  
26 and bits starting at a first bit of the current packet  
27 register, and

28       (f) thereafter repeat steps (b), (c), (d) and (e).

1       37. (New) The method of Claim 2, wherein the transmission  
2 clock rate is greater than the data processor clock rate.

1       38. (New) The method of Claim 1, wherein the second fixed  
2 size is larger in size than the first fixed size.



1        39. (New) The method of Claim 38, wherein the transmission  
2 clock rate is less than the data processor clock rate.

1        40. (New) The method of claim 31, wherein:  
2        said step of receiving the plurality of first information  
3 blocks and arranging the emulation information contained therein  
4 into a plurality of second information blocks wherein  
5        said step (b) of sequentially selecting a group of the  
6 second fixed size bits and said step (e) of selecting a group  
7 of second fixed size bits stall if there is no first  
8 information block stored in either said current packet  
9 register or in said last packet register.

1        41. (New) The method of claim 31, wherein:  
2        said step of receiving the plurality of first information  
3 blocks and arranging the emulation information contained therein  
4 into a plurality of second information blocks wherein  
5        said step (a) of storing a current first information  
6 block in a current packet register and said step (d) of  
7 storing a next first information block in the current packet  
8 register stores NOP bits if no first information block is  
9 available,  
10       said step (b) of sequentially selecting a group of the  
11 second fixed size bits and said step (e) of selecting a group  
12 of second fixed size bits selects a group of a second fixed  
13 size bits with a last valid first information block stored in  
14 said current packet register or in said last packet register  
15 and thereafter stalls if there is no first information block  
16 stored in either said current packet register or in said last  
17 packet register.

42. (New) The method of claim 31, wherein:  
said step of receiving the plurality of first information blocks and arranging the emulation information contained therein into a plurality of second information blocks wherein  
said step (a) of storing a current first information block in a current packet register and said step (d) of storing a next first information block in the current packet register stores NOP bits if no first information block is available,  
said step (b) of sequentially selecting a group of the second fixed size bits and said step (e) of selecting a group of second fixed size bits selects a group of a second fixed size bits selects all NOP bits if there is no first information block stored in either said current packet register or in said last packet register.

43. (New) The integrated circuit of Claim 17, wherein the transmission clock rate is greater than the data processor clock rate.

44. (New) The integrated circuit of Claim 16, wherein said second fixed size is greater in size than said first fixed size.

45. (New) The integrated circuit of Claim 44, wherein the transmission clock rate is less than the data processor clock rate.

46. (New) The integrated circuit of claim 33, wherein:  
said combiner is further operable to  
not sequentially select groups of the second fixed size bits (b), not select a group of second fixed size bits (e) and stall if there is no first information block stored in either said current packet register or in said last packet register.

47. (New) The integrated circuit of claim 33, wherein:  
said combiner is further operable to  
store NOP bits in a current packet register (a) and store  
NOP bits in the current packet register if no first  
information block is available,  
sequentially select a group of the second fixed size bits  
(b) and select a group of second fixed size bits (e) by  
selecting a group of a second fixed size bits with a last  
valid first information block stored in said current packet  
register or in said last packet register and thereafter  
stalling if there is no first information block stored in  
either said current packet register or in said last packet  
register.

48. (New) The integrated circuit of claim 33, wherein:  
said combiner is further operable to  
store NOP bits in a current packet register (a) and store  
NOP bits in the current packet register if no first  
information block is available,  
sequentially select a group of the second fixed size bits  
(b) and select a group of second fixed size bits (e) by  
selecting all NOP bits if there is no first information block  
stored in either said current packet register or in said last  
packet register.

49. (New) The data processing system of Claim 34, wherein:  
the transmission clock rate is greater than the data processor  
clock rate.

1        50. (New) The data processing system of Claim 27, wherein:  
2        said second fixed size is greater in size than said first  
3        fixed size.

1        51. (New) The data processing system of Claim 50, wherein:  
2        the transmission clock rate is less than the data processor  
3        clock rate.

1        52. (New) The data processing system of claim 36, wherein:  
2        said combiner is further operable to  
3        not sequentially select groups of the second fixed size  
4        bits (b), not select a group of second fixed size bits (e) and  
5        stall if there is no first information block stored in either  
6        said current packet register or in said last packet register.

1        53. (New) The data processing system of claim 36, wherein:  
2        said combiner is further operable to  
3        store NOP bits in a current packet register (a) and store  
4        NOP bits in the current packet register if no first  
5        information block is available,  
6        sequentially select a group of the second fixed size bits  
7        (b) and select a group of second fixed size bits (e) by  
8        selecting a group of a second fixed size bits with a last  
9        valid first information block stored in said current packet  
10       register or stored in said last packet register and thereafter  
11       stalling if there is no first information block stored in  
12       either said current packet register or in said last packet  
13       register.

1        54. (New) The data processing system of claim 36, wherein:  
2        said combiner is further operable to

3           store NOP bits in a current packet register (a) and store  
4   NOP bits in the current packet register if no first  
5   information block is available,

6           sequentially select a group of the second fixed size bits  
7   (b) and select a group of second fixed size bits (e) by  
8   selecting all NOP bits if there is no first information block  
9   stored in either said current packet register or in said last  
10   packet register.